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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,152	03/21/2001	Tetsuya Nakabayashi	0033-0701P	1937

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EXAMINER

VINH, LAN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/813,152

Applicant(s)

NAKABAYASHI ET AL.

Examiner

Lan Vinh

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-12 is/are allowed.
- 6) ☒ Claim(s) 2,4-7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09813152.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5,468,344) in view of Hayakawa et al (US 5,254,171)

Inoue discloses a method for manufacturing semiconductor device comprising the steps of:

forming a etching mask 122 on a portion of clamp 124/susceptor forming contact with Si chip 121 (col 3, lines 12-15, fig. 1)

applying a blasting process on the surface of clamp 124/susceptor (col 3, lines 29-30)

etching the surface of clamp 124/susceptor (col 3, lines 31-33)

Inoue also discloses that the clamp 124/susceptor includes a main body 124, a protruding portion/step portion 133 on the main body 132 to support substrate 131 from the bottom, the portion 133/step portion having a size smaller than the substrate 131 (fig. 2), fig. 1 shows that masking layer 122 masks a portion of clamp/susceptor main body 124

Unlike the instant claimed invention as per claim 2, Inoue does not specifically disclose forming a clamp/susceptor that has SiO₂ as a main component

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However, Hayakawa, in a method of plasma etching using an apparatus, teaches using a quartz glass clamp to hold wafer/susceptor (col 4, lines 10-12), which reads on forming a clamp/susceptor that has SiO₂ as a main component.

Hence, one skilled in the art would have found it obvious to modify Inoue's method by forming a clamp/susceptor that has SiO₂ as a main component as per Hayakawa because according to Hayakawa quartz coating prevents the generation of contaminants and particles (col 1, lines 55-57)

Regarding claim 6, Inoue discloses the step of rinsing the clamp/susceptor after etching (col 3, lines 60-64)

3. Claims 4, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5,468,344) in view of Hayakawa et al (US 5,254,171) and further in view of Macdonald et al (US 6,494,960)

Inoue as modified by Hayakawa has been described above in paragraph 2. Inoue and Hayakawa differ from the instant claimed inventions as per claims 4, 10 by performing the step of rinsing the surface of the susceptor after the step of blasting instead of prior to the step of blasting.

However, Macdonald discloses a method for removing a coating from a substrate comprises the step of rinsing the substrate before/in prior to an abrasion step such as a blasting step (col 7, lines 29-34)

Hence, one skilled in the art would have found it obvious to modify Inoue and Hayakawa method by rinsing the surface of the susceptor prior to the step of blasting in

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view of Macdonald's teaching because according to Macdonald the use of the rinsing step before the abrasion step/blasting step usually decreases the time required for carrying out the abrasion/blasting step (col 7, lines 33-36)

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5,468,344) in view of Hayakawa et al (US 5,254,171) and further in view of Gorczyca et al (US 6,368,410)

Inoue as modified by Hayakawa has been described above in paragraph 2. Unlike the instant claimed invention as per claim 5, Inoue and Hayakawa fail to disclose carrying the blasting step using SiC.

However, Gorczyca discloses a method of processing semiconductor article comprises the step of blasting the quartz article using SiC (col 3, lines 10-11)

Hence, one skilled in the art would have found it obvious to modify Inoue and Hayakawa by carrying the blasting step using SiC as per Gorczyca because Gorczyca states that the quartz articles is preferably roughened by sand blasting using SiC (col 3, lines 10-11)

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5,468,344) in view of Gorczyca et al (US 6,368,410)

Inoue discloses a method for manufacturing semiconductor device using a jig comprising the steps of:

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applying a blasting process on the surface of Si chip 121/subject to be processed
(col 3, lines 29-30)

etching the surface of Si chip 121/subject to be processed (col 3, lines 32-33)

rinsing/cleaning the surface of Si chip/subject to be processed (col 3, lines 50-53)

Inoue also discloses that the clamp 124/susceptor includes a main body 124, a protruding portion/step portion 133 on the main body 132 to support substrate 131 from the bottom, the portion 133/step portion having a size smaller than the substrate 131 (fig. 2), fig. 1 shows that masking layer 122 masks a portion of clamp/susceptor main body 124 prior to performing the blasting step

Unlike the instant claimed invention as per claim 7, Inoue does not specifically disclose rinsing the Si chip /subject to be processed at high pressure.

However, Gorczyca discloses a method of processing semiconductor article comprises the step of rinsing the wafer at high pressure (col 5, lines 56-67)

Hence, one skilled in the art would have found it obvious to modify Inoue's rinsing step by rinsing the Si chip /subject to be processed at high pressure as per Gorczyca because Gorczyca teaches that high pressure spray/high pressure rinsing removes loosely adhering quartz pieces thus reducing the possibility of introducing particles into the chamber (col 5, lines 56-61)

Allowable Subject Matter

6. Claims 11-12 allowed.

The following is an examiner's statement of reasons for allowance:

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Regarding claims 11-12, the cited prior art of record fails to disclose or suggest the step of repeating another etching step and high pressure rinsing prior to the blasting step. The closest cited prior art of Inoue (US 5,468,344) discloses performing only one etching step after the blasting step.

Response to Arguments

7. Applicant's arguments with respect to claims 2, 4-7, 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 703 305-6302.

The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703 305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.



LV

August 22, 2003